UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|---|---|---|---|---|
| 10/781,102 | 02/18/2004 | Mark D. Fidock | 10350B | 6351 |

28523 7590 06/17/2005

PFIZER INC.
PATENT DEPARTMENT, MS8260-1611
EASTERN POINT ROAD
GROTON, CT 06340

| EXAMINER | |
|---|---|
| SAIDHA, TEKCHAND | |

| ART UNIT | PAPER NUMBER |
|---|---|
| 1652 | |

DATE MAILED: 06/17/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

| Office Action Summary | Application No. | Applicant(s) | |
|---|---|---|---|
| | 10/781,102 | FIDOCK, MARK D. | |
| | Examiner | Art Unit | |
| | Tekchand Saidha | 1652 | |

*-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --*

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

1)☒ Responsive to communication(s) filed on *06 June 2005*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

4)☒ Claim(s) *1-23* is/are pending in the application.

4a) Of the above claim(s) *2-12,14,16-20 and 22* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,13,15,21 and 23* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☒ Claim(s) *1-23* are subject to restriction and/or election requirement.

**Application Papers**

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *18 February 2004* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☒ Certified copies of the priority documents have been received in Application No. 09/883,481.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

***Detailed Office Action following Restriction Requirement***

1. Restriction to one of the following inventions is required under 35 U.S.C. 121:

I. Claims 1, 13, 15, 21 & 23, drawn to a recombinant phosphodiesterase - PDE1B2 of SEQ ID NO : 1, classified in class 435, subclass 196.

II. Claims 2-7, 14 & 22, drawn to nucleic acid encoding PDE, vector & host cell, classified in class 435, subclass 252.3

III. Claims 8-10 & 19-20, drawn to an assay method of identifying a compound effecting PDE activity, classified in class 435, subclass 69.2.

IV. Claims 11-12 & 16, drawn to a method effecting the in *vivo* PDE activity, classified on class 435, subclass 19.

V. Claims 17-18, drawn to use of PDE1B2 gene and/or expression product, classified in class 435, subclass 6.

2. The inventions are distinct, each from the other because of the following reasons:

The DNA of group II is related to the protein of group I by virtue of the fact that the DNA codes for the protein. The DNA molecule has utility for the recombinant production of the protein in a host cell. Although the DNA and the protein are related, since the DNA encodes the specifically claimed protein, they are distinct inventions because the protein product can be made by other and materially distinct processes, such as purification from the natural source. Further, DNA can be used for processes other than the production of protein, such as nucleic acid hybridization assays.

3. Inventions I and III-V are related as product and process of use. The inventions can be shown to be distinct if either or both of the following can be shown: (1) the process for using the product as claimed can be practiced with another materially different product or (2) the product as claimed can be used

in a materially different process of using that product (MPEP § 806.05(h)). In the instant case the product i.e., PDE enzyme, as claimed in Group I can be used in a materially different process such as in making antibodies, rather than in methods for Group III-V.

4. The product of Invention II is not used in the methods of Invention III-V. Therefore, Inventions III, IV & V are patentably distinct from Invention II.

5. The methods of Inventions III, IV and V are related in that each method requires the use of invention of Group I/II. However, the steps and end points of the methods are wholly different and therefore Inventions III-V and I/II are patentably distinct.

6. During a telephone conversation with Nicholas I. Slepchuk, Jr. on June 6, 2005 a provisional election was made with traverse to prosecute the invention of Groups I, claims 1, 13, 15, 21 & 23. Affirmation of this election must be made by applicant in replying to this Office action.

7. Claims 2-12, 14, 16-20 and 22 are withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

8. Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

9. The examiner has required restriction between product and process claims. Where applicant elects claims directed to the product, and a product claim is subsequently found allowable, withdrawn process claims that depend from or otherwise include all the limitations of the allowable product claim will be rejoined in accordance with the provisions of MPEP § 821.04. Process claims that depend from or otherwise include all the limitations of the patentable product will be entered as a matter of right if the amendment is presented prior to final rejection

or allowance, whichever is earlier. Amendments submitted after final rejection are governed by 37 CFR 1.116; amendments submitted after allowance are governed by 37 CFR 1.312.

In the event of rejoinder, the requirement for restriction between the product claims and the rejoined process claims will be withdrawn, and the rejoined process claims will be fully examined for patentability in accordance with 37 CFR 1.104. Thus, to be allowable, the rejoined claims must meet all criteria for patentability including the requirements of 35 U.S.C. 101, 102, 103, and 112. Until an elected product claim is found allowable, an otherwise proper restriction requirement between product claims and process claims may be maintained. Withdrawn process claims that are not commensurate in scope with an allowed product claim will not be rejoined. See "Guidance on Treatment of Product and Process Claims in light of *In re Ochiai, In re Brouwer* and 35 U.S.C. § 103(b)," 1184 O.G. 86 (March 26, 1996). Additionally, in order to retain the right to rejoinder in accordance with the above policy, Applicant is advised that the process claims should be amended during prosecution either to maintain dependency on the product claims or to otherwise include the limitations of the product claims. Failure to do so may result in a loss of the right to rejoinder.

Further, note that the prohibition against double patenting rejections of 35 U.S.C. 121 does not apply where the restriction requirement is withdrawn by the examiner before the patent issues. See MPEP § 804.01.

10. ***Priority***

Acknowledgment is made of applicants' claim for priority based on an application filed in United Kingdom on 9.17.99. Certified copy of the priority document was filed in the parent application, US Serial number 09/663,481.

11. The specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

12. Group I claims 1, 13, 15, 15 & 23, pertaining to PDE1B2, a phosphodiesterase having the amino acid sequence of SEQ ID NO: 1 are under consideration in this examination.

13. ***Continuation of prior application***

When a non-provisional application claims the benefit under 35 USC 120 of a prior application, which in turn claims the benefit of a provisional application, the first sentence of the specification should read, e.g., "This application is a continuation of U.S. Application No. 09/------, filed ------, now abandoned, which claims the benefit of U.S. Provisional Application No. 60/------, filed ------."

14. ***Sequence Rules***

The instant **specification on pages 15 & 20**, drawings – **Figures 1 & 4A-4D** present amino acid sequence(s), and **primers on page 73**, that are encompassed by the definitions for nucleotide and/or amino acid sequences set forth in 37 CFR 1.821(a)(1) and (a)(2), but fails to comply with the requirements. According to 37 CFR 1.821-825, every disclosed amino acid sequence of four or more residues or 10 or more nucleotides must be identified by a SEQ ID NO. The amino acid and nucleotide sequences presented do not have SEQ ID Nos. In order to comply with the sequence rules Applicants must identify these sequences by providing appropriate SEQ ID Nos., and where required provide a new version of the sequence listing and disk.

However, this application fails to comply with the requirements of 37 CFR 1.821 through 1.825 for the reason(s) stated above. Applicant must submit a CRF copy and paper copy of the Sequence Listing, a statement that the content of the paper and computer readable copies are the same and where

applicable include no new matter as required by 37 C.F.R. j 1.821(e) or 1.821(9 or 1.821(g) or 1 .825(d), as well as an amendment directing its entry into the specification.

Should the required sequences be already identified as per Applicants' sequence compliance and sequence listing, the unidentified sequences in the specifications/figure legends be identified by inserting the appropriate SEQ ID Nos. into the text as required

Appropriate corrections for compliance are required.

***New Sequence Rules***

Since the effective filing date after July 1, 1998, Applicants should follow the New Rule Format and submit a new Sequence Listing (both in electronic and paper format). Compliance according to the requirements of 37 CFR 1.821 through 1.825 is required.

15. ***Claim Rejections - 35 U.S.C. § 112*** (first paragraph)

***Deposit Requirement***

Claim 15 is rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

It is apparent that the [plasmid/microorganism/vector] is required to practice the claimed invention. As such the [plasmid/microorganism/vector] must be readily available or obtainable by a repeatable method set forth in the specification, or otherwise readily available to the public. If it is not so obtainable or available, the requirements of 35 U.S.C. 112, first paragraph, may be satisfied by a deposit of the [plasmid/microorganism/vector]. The specification lacks complete deposit information for the deposit of [plasmid/microorganism/vector]. If a deposit was made under the terms of the Budapest Treaty, then an affidavit or declaration by Applicants, or a statement by an attorney of record over his or her signature and registration number,

stating that the instant invention will be irrevocably and without restriction released to the public upon the issuance of a patent, would satisfy the deposit requirement made herein. If a deposit has not been made under the Budapest Treaty, then in order to certify that the deposit meets the criteria set forth in 37 CFR 1.801-1.809 and MPEP 2402-2411.05, Applicant may provide assurance of compliance by affidavit or declaration, or by a statement by an attorney of record over his or her signature and registration number showing that (a) during pendency of the application, access to the invention will be afforded to the Commissioner upon request, (b) all restrictions upon availability to the public will be irrevocable removed upon granting of the patent, (c) the deposit will be maintained in a public depository for a period of 30 years, or 5 years after the last request or for the enforceable life of the patent, whichever is longer, (d) a test of the viability of the biological material at the time of deposit (see 37 CFR 1.807) and (e) the deposit will be replaced if it should ever become inviable.

Claim 15 is rejected under 35 U.S.C. § 112, first paragraph, for the reasons set forth in the objection to the specification.

While deposit of NCIMB Number 41026 have been made in accordance Budapest Treaty at a recognized depository; however, an affidavit or declaration [under 37 CFR 1.808] stating that: all restrictions upon availability to the public will be irrevocable removed upon granting of the patent, the deposit will be maintained in a public depository for a period of 30 years, or 5 years after the last request or for the enforceable life of the patent, whichever is longer, and the deposit will be replaced if it should ever become inviable.

A statement under 37 CFR 1.808 is required to overcome this rejection.

16. ***Enablement***

Claims 1, 13, 15, 21 & 23 are rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for an isolated phosphodiesterase of SEQ ID NO: 1, does not reasonably provide enablement

for any variant, fragment, homolog or derivative thereof of SEQ ID NO: 1 (claim 1). The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make the invention commensurate in scope with these claims.

Claim 1 encompasses any variant, fragment, homolog or derivative thereof – pertaining to SEQ ID NO : 1 which may or may not have phosphodiesterase activity. Claim 13 encompasses any enzyme capable of reacting immunologically with an antibody raised against PDE1B2. Claim 15 is drawn to any PDE (phosphodiesterase ?) which can be expressed following isolation of a nucleic acid (obtainable) from NCIMB 41026. Claims 21 & 23 encompass any recombinant and Applicant designated PDE1B2 enzyme or the PDE1B2 substantially as described herein.

The scope of the claim does not commensurate with the enablement provided by the disclosure with regard to the extremely large number of variants, derivatives or homologues of the amino acid sequence of SEQ ID NO: 1 broadly encompassed by the claims. The instant specification provides guidance to obtaining or isolating a 516 amino acids long phosphodiesterase of SEQ ID NO: 1 and the encoding DNA of SEQ ID NO: 2. No guidance is provided for modifying the single disclosed sequence in order to generate variants, homolog or derivative thereof. Since the amino acid sequence of a protein determines its structural and functional properties, predictability of which changes can be tolerated in a protein's amino acid sequence and obtain the desired activity requires a knowledge of and guidance with regard to which amino acids in the protein's sequence, if any, are tolerant of modification and which are conserved (i.e. expectedly intolerant to modification), and detailed knowledge of the ways in which the proteins' structure relates to its function. However, in this case the disclosure is limited to the nucleotide and encoded amino acid sequence of SEQ ID NO: 1.

While recombinant and mutagenesis techniques are known, it is not routine in the art to screen for multiple substitutions or multiple modifications, as encompassed by the instant claims, and the positions within a protein's sequence where amino acid modifications can be made with a reasonable expectation of success in obtaining the desired activity/utility are limited in any protein and the result of such modifications is unpredictable. In addition, one skilled in the art would expect any tolerance to modification for a given protein to diminish with each further and additional modification.

The specification does not support the broad scope of the claim which encompass any amount of protein modifications of SEQ ID No: 1, which may now result in a protein totally diverse and functionally non-relevant to the original sequence because the specification does **not** establish: (A) regions of the protein structure of SEQ ID NO: 1 which may be modified without effecting PDE activity; (B) the general tolerance of PDE (SEQ ID NO: 1) to modification and extent of such tolerance; (C) a rational and predictable scheme for modifying any PDE residues with an expectation of obtaining the desired biological function; and (D) the specification provides insufficient guidance as to which of the essentially infinite possible choices is likely to be successful.

Further, the phosphodiesterases/proteins from different sources having varying substrate specificities for cAMP or cGMP and the PDE activity in some tissues could be activated by calcium or calmodulin. Therefore, random modifications of the SEQ ID NO: 1 or the fragments or derivatives thereof, without adequate guidance, may result in a protein with no PDE activity or a PDE activity with different substrate specificity and cofactor requirement.

Thus, applicants have not provided sufficient guidance to enable one of ordinary skill in the art to make and use the claimed invention in a manner reasonably correlated with the scope of the claims broadly including PDE with an enormous number of amino acid modifications of the PDE of SEQ ID No: 1 and retain PDE activity. The scope of the claims must bear a reasonable

correlation with the scope of enablement (In re Fisher, 166 USPQ 19 24 (CCPA 1970)). Without sufficient guidance, determination of any PDE or modifications thereof having the desired enzymatic characteristics is unpredictable and the experimentation left to those skilled in the art is unnecessarily, and improperly, extensive and undue. See In re Wands 858 F.2d 731, 8 USPQ2nd 1400 (Fed. Cir, 1988).

17. ***35 U.S.C. § 112, first paragraph (Written Description)***

Claims 1, 13, 15, 21 & 23 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventors, at the time the application was filed, had possession of the claimed invention.

Claim 1 recites 'fragment, variant, homologue, fragment or derivative of SEQ ID NO: 1. However, no fragment, variant, homologue or derivative of SEQ ID NO: 1 are described in the specification and where no associated function is apparent. Claim 13 recites any enzyme capable of reacting immunologically with an antibody raised against PDE1B2. However, no structure to the Applicant designated PDE1B2 is apparent.

Claim 15 is drawn to any PDE (phosphodiesterase ?) which can be expressed following isolation of a nucleic acid (obtainable) from NCIMB 41026. However, no methods are described for the isolation of nucleic acid (obtainable) from NCIMB 41026, as well as no structure is apparent. Claims 21 & 23 are drawn to any recombinant and Applicant designated PDE1B2 enzyme or the PDE1B2 substantially as described herein. However, no structure to the Applicant designated recombinant PDE1B2 from any source is apparent. No description is provided of other PDE1B2 which are 'substantially as described herein'. In addition the specification fails to disclose a recombinant PDE1B2 enzyme (other than human PDE1B2) obtained from any and all organisms.

The specification, however, only provides a single species in the sequence of SEQ ID NO: 1. The disclosure of a single species is rarely, if ever, sufficient to describe a broad genus, particularly when the specification fails to describe the features of that genus, even in passing. (see In re Shokal 113USPQ283(CCPA1957); Purdue Pharma L. P. vs Faulding Inc. 56 USPQ2nd 1481 (CAFC 2000) specification disclosed single variant of SEQ ID NO:1 which encodes for a recombinant human PDEXV enzyme. The possession may be shown by actual reduction to practice, clear depiction of the invention in a detailed drawing, or by describing the invention with sufficient relevant identifying characteristics (as it relates to the claimed invention as a whole) such that a person skilled in the art would recognize that the inventor had possession of the claimed invention. See, e.g., Pfaff F. Wells Electronics, Inc., 525 U.S. 55, 68, 119 S.Ct. 304, 312, 48 USPQ2d 1641, 1647 (1998); Eli Lilly, 119 F.3d at 1 568, 43 USPQ2d at 1406; Amgen, Inc. v. Chugai Pharmaceutical, 927 F.2d 1200, 1206, 18 USPQ2d 1016, 1021 (Fed. Cir. 1991). In claims to genetic material, generic statement such as "vertebrate insulin CDNA" or mammalian insulin CDNA," without more, is not adequate written description of claimed genus, since it does not distinguish genus from others except by function, and does not specifically define any of genes that fall within its definition, or describe structural features commonly possessed by members of genus that distinguish them from others'; accordingly, naming type of material generally known to exist, in absence of knowledge as to what that material consists of, is not description of that material (Eli Lilly, 119 F.3d at 1568, 43 USPQ2d 130at 1406). There is no disclosure of any particular structure to function/activity relationship in the single disclosed species to other claimed species where such sequences are conserved in order to establish a relationship among species or modify the sequence(s) of SEQ ID NO: 1 by substitution, deletion or addition or make a PDE1B2 from any source or PDE1B2 which may be substantially similar to as described herein. The

specification also fails to describe additional representative species of SEQ ID NO: 1, viz., the variants, homologs or fragments such peptides by any activity other than the identifying structural characteristics recited in SEQ ID NO: 1, for which no predictability of activity is apparent. Given this lack of additional representative species, such as the modifications in order to create a variant, homologue, fragment or derivative thereof and still have some activity and/or utility, Applicants have failed to sufficiently describe the claimed invention, in such full, clear, concise, and exact terms that a skilled artisan would recognize Applicants were in possession of the claimed invention.

Therefore, the written description requirement is not satisfied.

18. ***Claim Rejections - 35 U.S.C. § 112*** (second paragraph)

Claims 13, 15, 21 & 23 are rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 13, 15, 21 & 23 recite abbreviations 'PDE or PDE1B2'. Claim 15 also recites 'expressable'.

The claims are unclear because the abbreviations remain undefined. The first use of uncommon abbreviations such as those recited in the claims be spelt out, which may be subsequently abbreviated.

The recitation 'expressable' in claim 15 is unclear in a grammatical sense and the spelling incorrect. The correct spelling would be "expressible'. Substituting 'expressed' for 'expressable', or other suitable expression will overcome this rejection. Applicants may improve further the indefiniteness of claim 15 by rephrasing the claim entirely. Suggested example is as follows:

An isolated PDE of SEQ ID NO: 1, wherein the PDE is encoded by a nucleic acid sequence encoding SEQ ID NO: 1, said nucleic acid having been transformed in the host cell deposit NCIMB 41026.

19. **35 U.S.C. § 101**

35 U.S.C. § 101 reads as follows:

"Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter or any new and useful improvement thereof, may obtain a patent therefore, subject to the conditions and requirements of this title".

Claims 1, 13, 15 & 23 are rejected under 35 U.S.C. § 101 because the claimed invention is directed toward non-statutory subject matter.

In the absence of the hand of man, naturally occurring proteins and/or nucleic acids are considered non-statutory subject matter. *Diamond v. Chakrabarty*, 206 USPQ 193 (1980). This rejection may be overcome by amending the claims 1, 13, 15 & 23 to recite wording such as "An isolated amino acid sequence or isolated PDE ".

20. ***Claim Rejections - 35 U.S.C. § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. § 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless --

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1, 13, 21 & 23 are rejected under 35 U.S.C. 102(e) as being anticipated by Epstein [USP 5,885,834, 1997]. Epstein teaches a cyclic nucleotide phosphodiesterase (PDE) amino acid sequence of SEQ ID NO : 2, which is 96.5% identical to Applicants SEQ ID NO : 1. Since the claims are drawn to any variant or homolog or fragment of the sequence of SEQ ID NO: 1, with no limitation about the extent of the modifications reads on claim 1; and antibodies raised against the disclosed PDE will

inherently have a immunological reaction with an antibody raised against SEQ ID NO : 1, in view of the close sequence homology (claim 13). Applicants' claim 21 or 23 recites a recombinant PDE1B2, which is an arbitrarily assigned designation having phosphodiesterase activity, is therefore anticipated by any PDE, including a highly homologous sequence such as that disclosed by Epstein. [sequence alignment between Applicants' SEQ ID NO: 1 and Epstein's Accession Number AAW95110 (or SEQ ID NO: 2) is enclosed].

21. `Claims 1, 13 , 21 & 23 are rejected under 35 U.S.C. 102(b) as being anticipated by Beavo et al. [USP 5,389,527, 1995]. Beavo et al. teach a cyclic nucleotide phosphodiesterase (PDE) amino acid sequence of SEQ ID NO : 27, which is 92.8% identical to Applicants SEQ ID NO : 1. Since the claims are drawn to any variant or homolog or fragment of the sequence of SEQ ID NO: 1, with no limitation about the extent of the modifications (claim 1); and antibodies raised against the disclosed PDE will inherently have a immunological reaction with an antibody raised against SEQ ID NO : 1, in view of the close sequence homology (claim 13). Applicants' claim 21 or 23 recites a recombinant PDE1B2, which is an arbitrarily assigned designation having phosphodiesterase activity, is therefore anticipated by any PDE, including a highly homologous sequence such as that disclosed by Beavo et al. [sequence alignment between Applicants' SEQ ID NO: 1 and Beavo et al. Accession Number AAR69720 (or SEQ ID NO: 27) is enclosed].

22. No claim is allowed.

23. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tekchand Saidha whose telephone number is (571) 272 0940. The examiner can normally be reached on 8.30 am - 5.00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ponnathapu Achutamurthy can be reached on (571)

272 0928. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Tekchand Saidha
Primary Examiner, Art Unit 1652
Recombinant Enzymes, 02A65 Remsen Bld.
400 Dulany Street, Alexandria, VA 22314
Telephone : (571) 272-0940
June 8, 2005